JAPAN

EDICT OF GOVERNMENT

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JIS B 4709 (1997) (English): Planer knives for woodworking machines

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The citizens of a nation must honor the laws of the land.

Fukuzawa Yukichi

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JIS B 4709 : 1997

Planer knives for woodworking machines

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Descriptors : knives (tools), cutting tools, planes, woodworking, woodworking machines

Reference number : **JIS B 4709 : 1997 (E)**

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In the event of any doubts arising as to the contents, the original JIS is to be the final authority.

Planer knives for woodworking machines

1 Scope This Japanese Industrial Standard specifies the planer knives to be used in the rotary planer bodies for woodworking machines (hereafter, referred to as "planer knives").

Remarks: The following standards are cited in this Standard:

JIS B 0601 *Surface roughness—Definitions and designation*

JIS B 0651 *Surface texture—Instruments for the assessment of surface texture—Profile method*

JIS B 7502 *Micrometer callipers*

JIS B 7507 *Vernier, dial and digital callipers*

JIS B 7514 *Steel straightedges*

JIS B 7524 *Feeler gauges*

JIS B 7726 *Rockwell and Rockwell superficial hardness testing machines*

JIS B 7727 *Shore hardness testing machines*

JIS G 3101 *Rolled steels for general structure*

JIS G 4051 *Carbon steels for machine structural use*

JIS G 4403 *High speed tool steels*

JIS Z 2245 *Method of Rockwell and Rockwell superficial hardness test*

JIS Z 2246 *Method of Shore hardness test*

2 Types and symbols The types and symbols of planer knives shall be classified as given in Table 1 according to the presence of setting hole.

Table 1 Types and symbols

Type	Symbol	Remarks
Type A	A	Those with setting holes
Type B	B	Those without setting holes

3 Quality

3.1 Appearance The surface of the planer knives shall be smooth in appearance, and be free from such defects as macro-streak-flaws, cracks, twists, ill adhesion, harmful burrs, rust and the like, and be excellent in finish.

3.2 Surface roughness The surface roughness of the rear face of planer knife, when measured in accordance with **6.1**, shall be 0.8 $\mu m R_a$ or under specified in **JIS B 0601**.

3.3 Hardness The hardness of the cutting metal part and the base metal part, when the test is carried out in accordance with **6.2**, shall show the relevant values of Table 2.

Table 2 Hardness of cutting metal part and base metal part

Item	Hardness	
	Hardness	Dispersion of hardness
Cutting metal part	62 HRC or over	2 HRC or under
	85 HS or over	4 HS or under
Base metal part	99 HRB or under	—
	35 HS or under	—

Remarks: The hardness shall satisfy the value expressed in one of HRC, HRB or HS.

3.4 Flatness The flatness of the planer knife shall be as stated below (see Fig. 1).

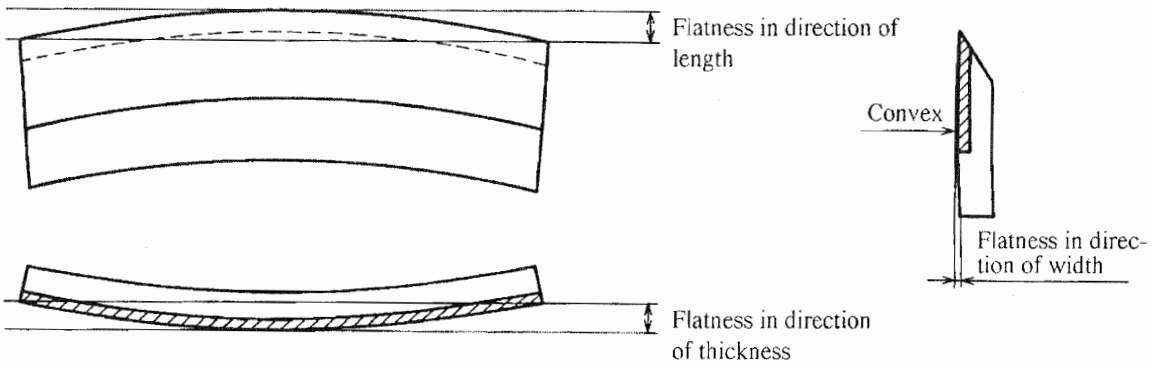


Fig. 1 Flatness of planer knife

(1) **Flatness in direction of length** The permissible values of flatness in direction of length, when measured in accordance with **6.3**, shall not exceed the relevant value of Table 3.

(2) **Flatness in direction of thickness** The permissible values of flatness in direction of thickness, when measured in accordance with **6.3**, shall not exceed the relevant value of Table 4.

(3) **Flatness in direction of width** The rear face of planer knife, when measured in accordance with **6.3**, shall not show convex as illustrated in Fig. 1.

Table 3 Flatness in direction of length

Unit: mm

Length L	Permissible value
100 to 300	0.10
305 to 510	0.15

Table 4 Flatness in direction of thickness

Unit: mm

Length L	Permissible value
100 to 300	0.4
305 to 510	0.6

3.5 Dispersion of mass The dispersion of masses of one set of planer knives to be set to the planer body, when measured in accordance with **6.4**, shall not exceed the relevant value of Table 5.

Table 5 Dispersion of masses

Unit: g

Length L (mm)	Dispersion of mass
100 to 300	4
305 to 510	5

4 Shapes and dimensions The shapes and dimensions of planer knives shall be as given in Attached Tables 1 and 2.

5 Materials

5.1 Material of cutting metal part The cutting metal part shall be SKH51 specified in **JIS G 4403** or a material having performances at least equivalent in use.

5.2 Material of base metal part The base metal part of the planer knife shall be the steel specified in **JIS G 3101** or **JIS G 4051** or that having performances at least equivalent in use.

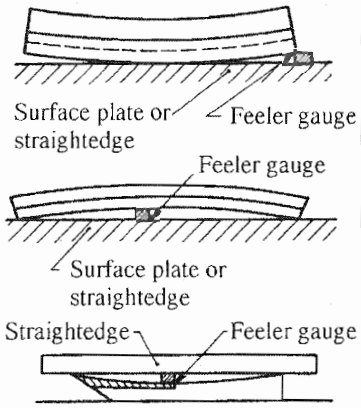
6 Testing methods

6.1 Surface roughness The surface roughness of the rear face of the planer knife shall be measured using the measuring instrument specified in **JIS B 0651** or that having performances at less equivalent.

6.2 Hardness The hardness of the cutting metal part and base-metal part of the planer knife shall be measured in accordance with the testing method of **JIS Z 2245** or **JIS Z 2246** using the testing machine specified in **JIS B 7726** or **JIS B 7727**. However, as to the cutting metal part, measure the hardness at three places locating on almost central part of cutting metal width at nearly 20 mm from both ends of lengthwise direction and near the center part, and consider the value of near the center part to be the measuring value of hardness of cutting metal part, and consider the maximum difference of measured values of three places to be the dispersion on hardness of cutting metal part.

6.3 Flatness The flatness of the planer knife shall be measured by the method given in Table 6.

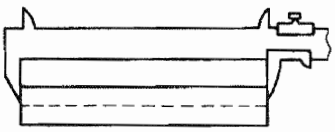
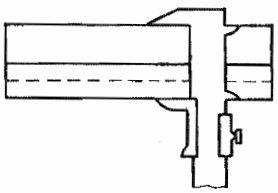
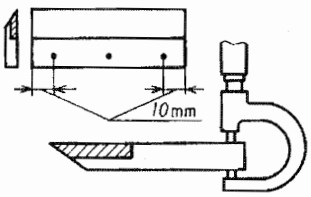
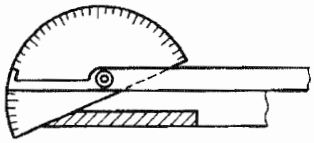
Table 6 Measuring method of flatness

Item	Measuring method	Diagram for measuring method	Measuring instrument
Flatness	Apply the measuring place to a flat surface, and measure the maximum clearance by the feeler gauge.		Feeler gauge of **JIS B 7524**, surface plate or Grade B straightedge of **JIS B 7514**

6.4 Dispersion of mass The dispersion of masses of one set of planer knives to be set to the planer body shall be measured by the weighing instrument of 0.5 g in minimum scale.

6.5 Shapes and dimensions The shapes and dimensions of the planer knife shall be measured in accordance with Table 7.

Table 7 Measuring methods of shapes and dimensions

No.	Item	Measuring method	Diagram for measuring method	Measuring instrument
1	Length	Measure the length at one place near the central part by the vernier caliper, and consider its value to be the measuring value.		Vernier caliper of **JIS B 7507**
2	Width and dispersion of width	Measure the width at 3 places of nearly 10 mm from both ends and nearly center part by the vernier caliper, and consider the value of near the center part to be the measuring value of width. Further consider the maximum difference of measured values of 3 places to be the dispersion of width.		Vernier caliper of **JIS B 7507**
3	Thickness and dispersion of thickness	Measure the thickness at 3 places locating on approximately 10 mm or less from the back part at nearly 10 mm from both ends and nearly center part, by the micrometer callipers for external measurement, and consider the value of nearly center part to be the measuring value of thickness. Further consider the maximum difference of the measured values of 3 places to be the dispersion of thickness.		Micrometer callipers for external measurement of **JIS B 7502**
4	Wedge angle	Measure the angle at one place in lengthwise direction, using the protractor or a gauge instead of this, and consider the value to be the measuring value.		Protractor or gauge

7 Inspection The inspection of planer knife shall be carried out on the appearance, surface roughness, hardness, flatness, shape and dimensions, and dispersion of mass, and the results shall conform to the requirements of **3.1** to **3.5** and **4** respectively.

8 Designation The planer knife shall be designated by this Standard number or title of this Standard, type or symbol, material symbol of cutting metal part and dimensions (length × width × thickness).

Examples: **JIS B 4709** A SKH51 305×75×9.5

Planer knife for woodworking machine Type B SKH51 300×32×6.4

9 Marking

9.1 Marking on products The following information shall be indelibly marked on each product:

(1) Dimensions (Length × width × thickness)

(2) Material symbol of cutting metal part

(3) Manufacturer's name or abbreviation

9.2 Marking on package The following information shall be indelibly marked on each package:

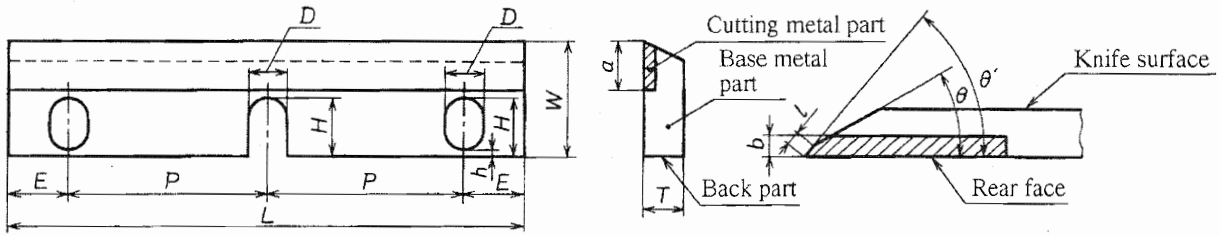
(1) Type or symbol

(2) Dimensions (Length × width × thickness)

(3) Material symbol of cutting metal part

(4) Manufacturer's name or abbreviation

Attached Table 1 Shapes and dimensions (Type A)



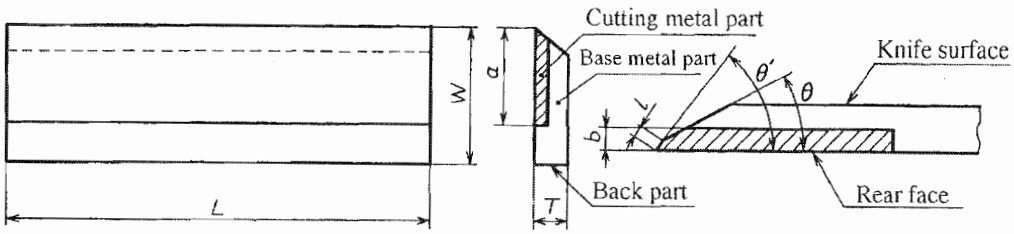
Unit: mm

Length L		Width W			Thickness T			Cutting metal part		Informative reference														
										Wedge angle θ		Cutting metal part		Dimensions of setting hole										
														$W(75)\times T(9.5)$			$W(70)\times T(8)$			$W(50)\times T(8)$			P	E	Number of setting holes
Basic dimension	Tolerances	Basic dimension	Tolerances	Dispersion	Basic dimension	Tolerances	Dispersion	Width a (Min.)	Thickness b (Min.)	Basic angle	Tolerances	l	$\theta'-\theta$	D	H	h	D	H	h	D	H	h			
100	±0.5	50	±0.5	0.2 max.	6.4	±0.05	0.05 max.	24	1.5	38° to 55°	± 1°	0.7 max.	1° max.	17	42	6	13	42	6	13	38	6	50	25	2
160		70			8.0												14						50	30	3
203		75			9.5																		75	26.5	3
250																							65	27.5	4
254																							70	22	
305	±0.7			0.3 max.																			76	38.5	
330																							84	39	
355																							76	25.5	5
390																							68	25	6
400																							85	30	5
406																							90	23	
426																								33	
450																							95	35	
457																								38.5	
460																								40	

Remarks 1 The back part of the knife surface may be chamfered as required.

2 The basic dimension of the length (L) is allowed to take other dimensions than that given in Attached Table 1 as agreed between the parties concerned with acceptance.

Attached Table 2 Shapes and dimensions (Type B)



Unit: mm

Length L		Width W			Thickness T			Cutting metal part		Informative reference			
										Wedge angle θ		Cutting metal part	
Basic dimension	Tolerances	Basic dimension	Tolerances	Dispersion	Basic dimension	Tolerances	Dispersion	Width a (Min.)	Thickness b (Min.)	Basic angle	Tolerances	l	$\theta' - \theta$
130	±0.5	28	±0.5	0.2 max.	3.2	±0.05	0.05 max.	18	1.0	38° to 55°	± 1°	0.7 max.	1° max.
150		32			4.0								
160		35			4.8								
180					5								
185					6.4								
230													
250													
254													
300													
305	±0.7			0.3 max.									
310													
350													
355													
400													
410													
450													
457													
464													
500													
508													
510													

Remarks: The basic dimension of the length (L) is allowed to take other dimensions than that given in Attached Table 2 as agreed between the parties concerned with acceptance.

Errata for JIS (English edition) are printed in *Standardization Journal*, published monthly by the Japanese Standards Association, and also provided to subscribers of JIS (English edition) in *Monthly Information*.

Errata will be provided upon request, please contact:

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